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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/739,356	12/18/2003	Wenkao Hou	GP-303397	9643

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EXAMINER
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SCHATZ, CHRISTOPHER

ART UNIT	PAPER NUMBER
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1733

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/27/2006	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No. 10/739,356	Applicant(s) HOU ET AL.	
	Examiner Christopher T. Schatz	Art Unit 1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 1,2,9 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-8,10 and 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## FINAL REJECTION

### *Election/Restrictions*

1. This application contains claims directed to the following patentably distinct species:

**Species A:** drawn to method wherein the non-ferrous component is a metal alloy.

**Species B:** drawn to method wherein the non-ferrous component is a polymeric material.

The species are independent or distinct because the methods are mutually exclusive. While it is theoretically possible for the non-ferrous component to consist of a metal and polymeric material, the disclosure in paragraph 0019 of applicant's specification is evidence that the methods are mutually exclusive. The language in paragraph 0019 states that the non-ferrous is either metallic *or* polymeric, and thus applicant does not have support to claim that the non-ferrous component consists of a metal and a polymeric material.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, 3-7 and 10 are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an

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allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

During a telephone conversation with George A. Grove a provisional election was made with traverse to prosecute the invention of Species A. Affirmation of this election must be made by applicant in replying to this Office action. Claims 9 and 12 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 10 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 10 recites the limitation "the sheet portion." There is insufficient antecedent basis for this limitation in the claim. The claim does not previously refer to a sheet portion.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sunamoto et al. '498 in view of Mauer et al. (newly cited) (2001/0027597).

Sunamoto discloses a method of a method of joining dissimilar materials comprising the steps of: placing a first component against a second component at a predetermined joining location, wherein the first and second components are composed of dissimilar materials; driving a self-piercing rivet through said first component and into said second component to mechanically attach said first component to said second component at said joining location: the self-piercing rivet comprising a head attached to a cylindrical shank with a tapered end so that the shank penetrates through said first component and into said second component; passing an electrical current through said self-piercing rivet and said second component at said joining location to fuse material at an interface of at least the shank of said rivet and said second component; and stopping the flow of electrical current to solidify the fused material and form a welded bond between at least said rivet and said second component (figures 1a-1c, column 3, line 10 – column 4, line 11, column 4, line 62 – column 6, line 3). The reference is silent as to a method wherein the rivet comprises a hollow cylindrical shaft. However, use of a hollow cylindrical shaft is known in the art. For example, Mauer et al. discloses a method of joining two materials, said method comprising driving a self-piercing rivet through a first component and into a second component to mechanically attach said first component to said second component at said joining location the self-piercing rivet comprising a hollow cylindrical shank with a tapered end so that the shank penetrates through said first component and into said second component and encloses material of said first component in the hollow of said shank (abstract, figures 13a-13e, paragraph 003, 0011, 0052, 0053). Mauer et al. further discloses that using a

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hollow rivet is a well known alternative to using a solid rivet and that said hollow rivet provides a high quality riveted joint (paragraph 0003, 0011). At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the hollowed rivet of Mauer et al. in Sunamoto et al.'s method. Mauer et al.'s hollowed rivet is a known alternative to Sunamoto et al.'s solid rivet and said hollow rivet would provide a high quality riveted joint as taught by Mauer et al. above.

As to claim 4, Sunamoto et al. discloses a method further comprising passing said electrical current by contacting said rivet with a first electrode and contacting said second component with a second electrode at a second surface opposite said joining location and using said electrodes to pass said current through said rivet and second component (column 5, line 3 – column 6, line 40). As to claim 5, Sunamoto discloses method further comprising engaging said first component at said joining location with an electrode assembly comprising a first electrode; engaging said second component at said second surface with a second electrode adapted to conform to said second surface for clamping and electrical contact; and using said electrodes to pass said current through said rivet and second component, said current flowing around or through said second component from said second surface to said joining location located at said interface (figures 1a-1c, column 3, line 10 – column 4, line 11, column 4, line 62 – column 6, line 3). The reference is silent as to the presence of an electrode tool. However, Mauer et al. discloses a method further comprising an assembly with a tool 249 (figures 13a-13e). The tool 249 is adopted to encompass the rivet and the punch 123, and serves the purpose of exerting a clamping force on said first component such that said first component can be held in place during the rivet punching process (paragraph 0053-0055). At the time of the invention it

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would have been obvious to a person of ordinary skill in the art to modify Sunamoto et al. by using an electrode tool that encompasses the rivet and electrode as taught by Mauer et al. The electrode tool engages the first component during the rivet punching process. As to claim 6, Mauer et al. discloses a method wherein the rivet is placed in the electrode tool and driven through said first component into the second component. As to claims 7 and 8, Sunamoto discloses a ferrous rivet and further discloses the joining of a ferrous component to a non-ferrous metallic component.

6. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (2004/0197134) (newly cited) in view of Sunamoto et al. and Mauer et al.

Wang et al. discloses a method of joining a first component to a tube 12, said method comprising: pressing a sheet portion 30, 31 of the first component against the first surface of the tube, at a predetermined joining location and joining said sheet portion of the first component to said tube by using rivets (paragraph 0007). Wang et al. is silent as to the specific means by which said rivets are attached to the first component and the tube. Sunamoto discloses a method of a method of joining dissimilar materials comprising the steps of: placing a first aluminum component against a second ferrous component at a predetermined joining location, wherein the first and second components are composed of dissimilar materials; driving a self-piercing ferrous rivet through said first component and into said second component to mechanically attach said first component to said second component at said joining location: the self-piercing rivet comprising a head attached to a cylindrical shank with a tapered end so that the shank penetrates through said first component and into said second component; passing an electrical current through said self-piercing rivet and said second component at said joining location to fuse

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material at an interface of at least the shank of said rivet and said second component; and stopping the flow of electrical current to solidify the fused material and form a welded bond between at least said rivet and said second component. Such an attachment method is well known in the art and produces a superior joint (figures 1a-1c, column 3, line 10 – column 4, line 11, column 4, line 62 – column 6, line 3).

Sunamoto et al. is silent as to a method wherein the rivet comprises a hollow cylindrical shaft. However, use of a hollow cylindrical shaft is known in the art. For example, Mauer et al. discloses a method of joining two materials, said method comprising driving a self-piercing rivet through a first component and into a second component to mechanically attach said first component to said second component at said joining location the self-piercing rivet comprising a hollow cylindrical shank with a tapered end so that the shank penetrates through said first component and into said second component and encloses material of said first component in the hollow of said shank (abstract, figures 13a-13e, paragraph 003, 0011, 0052, 0053). Mauer et al. further discloses that using a hollow rivet is a well known alternative to using a solid rivet and that said hollow rivet provides a high quality rivet joint (paragraph 0003, 0011). At the time of the invention it would have been obvious to a person of ordinary skill in the art to attach a rivet to the first and second components of Wang et al. by Sunamoto et al.'s method and use the rivet disclosed by Mauer et al. Attaching Mauer et al.'s rivet by Sunamoto et al.'s method to the first and second components of Wang et al. would produce a high quality riveted joint.



*Response to Arguments*

Applicant's arguments with respect to claims 3-12 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Christopher T. Schatz** whose telephone number is **571-272-1456**. The examiner can normally be reached on 8:00-5:30, Monday -Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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